PENDING CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 14 (previously presented): A measurement apparatus for continuous, simultaneous measurement of electrical physiological complex waveforms from neural samples, comprising:

(A) an integrated neural sample holding instrument provided with a plurality of microelectrodes arranged in a matrix form and adherent to a substrate, conductive pathways connected to the microelectrodes, said microelectrodes being within a neural sample holding part which is constructed to contain said at least one said neural sample and including said plurality of microelectrodes; said conductive pathways for providing electric stimulation signals to said microelectrodes and for leading out an electric signal from said microelectrodes;

(B) a signal processor connectable to said conductive pathways of said integrated neural sample holding instrument suitable for processing said signals arising from electric physiological activities of said at least one neural sample and reflecting said signals as said complex waveforms, and

(C) a stimulation signal supply connectable to all of said conductive pathways for providing electric stimulation to said neural sample.

Claim 15 (previously presented): The measurement apparatus of claim 14 further comprising a culturing apparatus for maintaining an environment for culturing said neural sample on said integrated neural sample holding instrument.

Claim 16 (previously presented): The measurement apparatus of claim 15 wherein the culturing apparatus comprises a temperature adjustment for maintaining a constant temperature, a circulator for circulating a solution, and a gas supply.

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Claim 17 (previously presented): The measurement apparatus of claim 14 wherein said plurality of microelectrodes comprise 64 electrodes arranged in eight columns and eight rows.

Claim 18 (previously presented): The measurement apparatus of claim 14 wherein said microelectrodes each have an electrode area of $4x10^2$ μm^2 to $4x10^4$ μm^2.

Claim 19 (previously presented): The measurement apparatus of claim 14 further comprising an optical microscope, an image pick-up device, and an image display device connected to the optical microscope.

Claim 20 (previously presented): The measurement apparatus of claim 19 further comprising an image storage device.

Claim 21 (previously presented): The measurement apparatus of claim 14 wherein said stimulation signal supply comprises a pulse signal generator.

Claim 22 (previously presented): The measurement apparatus of claim 14 wherein said signal processor further comprises a multichannel amplifier which amplifies said signal arising from neural sample activities and a multi-channel display device which displays an amplified signal waveform in real-time.

Claim 23 (previously presented): The measurement apparatus of claim 22 further comprising a computer which outputs said stimulation signal via a D/A converter and receives and processes an output signal arising from electric physiological activities of said neural sample via an A/D converter.

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